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10/591,089	05/21/2007	Johannes Reinschke	2005P00319WOUS	7808
46726 7590 08/10/2010 BSH HOME APPLIANCES CORPORATION INTELLECTUAL PROPERTY DEPARTMENT 100 BOSCH BOULEVARD NEW BERN, NC 28562				
EXAMINER ANDREWS, MICHAEL				
ART UNIT		PAPER NUMBER		
2834				
NOTIFICATION DATE		DELIVERY MODE		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

NBN-IntelProp@bshg.com

# Office Action Summary

**Application No.**

10/591,089

**Applicant(s)**

REINSCHKE ET AL.

**Examiner**

MICHAEL ANDREWS

**Art Unit**

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 June 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 7, 9-11 and 13-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7, 9-11 and 13-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB006)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Paper No(s)/Mail Date \_\_\_\_\_
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This Office Action is responsive to the Applicant's communication filed June 30, 2010. In virtue of this communication and the amendment concurrently filed:

- claims 7, 9-11, and 13-26 were previously pending, with claims 13-26 being withdrawn from consideration;
- the requirement for restriction has been withdrawn; and thus
- claims 7, 9-11, and 13-26 are now pending in the instant application.

### ***Election/Restriction***

1. Applicant's arguments (page 6, line 7 to page 7, line 5 of the Remarks), filed June 30, 2010, with respect to the election by original presentation, presented in the previous Office action, have been fully considered and are persuasive. Therefore, the requirement for restriction has been withdrawn. However, the amendments made to the claims, including those previously withdrawn, have necessitated the new grounds of rejection presented in this action. Thus, this action is made final.

### ***Response to Arguments***

2. Applicant's arguments (see pages 6-8 of the Remarks), filed June 30, 2010, with respect to the rejection(s) of claim(s) 7 and 9-11 have been fully considered and, those regarding the amended limitations, are persuasive. Therefore, the previous rejections have been withdrawn. However, the subsequent arguments regarding the rejections of claims 9 and 10 are not persuasive and have been addressed below.

The Applicant's first argument (page 7, lines 6-13 of the Remarks) states that the amendment which clarifies the "center position" as being the equilibrium point of the springs, overcomes the previous grounds of rejection. This point is conceded, and the previous grounds of rejection have been withdrawn.

The Applicant's second argument (page 7, lines 15-22) states that Rumswinkel (DE 1143578) does not disclose "a plurality of springs" disposed on "each side of the center position" as recited in claim 9. While this point is moot in view of the new grounds of rejection (Zabar's springs comprise two pluralities of springs, one on each side of the center position), the Examiner disagrees with the Applicant's interpretation of this claim language. This does not recite multiple springs on both sides of the center position, merely that the plurality of springs (as few as two) must have members on both sides. Therefore, one spring on either side of the center position defines "a plurality of springs" wherein said plurality is disposed on "each side of the center position" as claimed.

The Applicant's final argument (page 8, lines 3-7) states that, since dependent claim 10/7 was rejected under 35 USC 103(a) over Zabar (US 6,323,568 B1) in view of Rumswinkel, independent claim 7, which was rejected under 35 USC 102(b) over Rumswinkel, must also have been rejected over the same combination of references. The Examiner is unaware of this requirement and requests that the Applicant present evidence in support of this assertion.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 7, 9-10, 13-17, 19-23, and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zabar (US 6,323,568 B1) in view of Rumswinkel (DE 1146578).

With regard to claim 7, Zabar discloses a linear drive unit [2] (figures 1-3) comprising:

a yoke body [10, 20] having an exciter winding [15, 25] providing a magnetic field (col. 3, lines 12-24);

a magnetic armature part [30-34] which is set in linear oscillating motion about a center position in an axial direction by the magnetic field of the winding (col. 3, lines 36-40), the center position being the equilibrium position the armature part [30-34] adopts when oscillating between its maximum lateral deflection positions (figure 3; the armature is shown with the springs un-deflected), wherein a center of the armature [30-34] is aligned with a center of the yoke body [10, 20] in the center position (figure 3); and

a spring [40-45] having a fixed end [42, 43] clamped in a fixed manner with respect to the yoke body [10, 20] and an oscillating end [41] coupled to the armature part [30-34] at a point of application and acting on the armature part [30-34] in the direction of motion (col. 4, lines 30-36);

wherein the spring [40-45] is configured as a leaf spring tensioned transverse to the direction of movement of the armature part (figures 3 and 5; col. 4, lines 21-29).

Except that Zabbar does not expressly disclose that, in the center position of the armature part, the point of application of the spring on the armature part being displaced axially by a predetermined distance in relation to its clamping position.

Rumswinkel discloses a linear drive unit (col. 1, lines 1-5 and figures 1-3) comprising a yoke body [1] having an exciter winding providing a magnetic field (see col. 1, lines 5-10), a magnetic armature part [2, 3] which is set in linear oscillating motion about a center position in an axial direction (reference [20] designates the direction of movement) by the magnetic field of the winding (col. 1, lines 10-19);

wherein, in the center position of the armature part [2, 3], the point of application [42] of the spring [4] on the armature part [2, 3] being displaced axially by a

predetermined distance in relation to its clamping position [41] (figures 2-3; in its equilibrium position, the armature is displaced by distance [b]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the linear drive unit of Zabar by offsetting the armature part as taught by Rumswinkel, for improving the efficiency thereof, since Rumswinkel teaches that such a drive unit minimizes the air gap between the magnetic components (col. 1, lines 25-32).

With regard to claim 9, the combination of Zabar and Rumswinkel discloses the drive unit according to claim 7, as stated above, further comprising a plurality of springs [40-45] disposed on each side of the center position (figures 3-4; col. 3, lines 60-67; each spring [40] comprises two leaf springs [44, 45]).

With regard to claim 10, Zabar discloses the drive unit according to claim 7, as stated above, wherein the armature part [30] is connected to a plunger [3] of a compressor [4, 5, 6] (col. 2, line 62 through col. 3, line 3).

Except that Zabar does not expressly disclose that, in the center position of the armature part, the point of application of the spring on the armature part being displaced axially by a predetermined distance in relation to its clamping position, and the axial displacement of the point of application of the spring on the armature part being provided in the direction away from the compressor.

Rumswinkel discloses the drive unit according to claim 7, as stated above, where the armature part is displaced axially in relation to its clamping position.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the linear drive unit of Zabar by offsetting the armature part away from the compressor as taught by Rumswinkel, for improving the efficiency thereof, since Rumswinkel teaches that such a drive unit minimizes the air gap between the magnetic components (see col. 1, lines 25-32).

With regard to claim 13, Zabar discloses a linear drive unit [2] (figures 1-3) comprising:

a yoke body [10, 20] having an exciter winding [15, 25] providing a magnetic field (col. 3, lines 12-24);

a magnetic armature part [30-34] which is set in linear oscillating motion about a center position in an axial direction by the magnetic field of the winding (col. 3, lines 36-40), the center position being the equilibrium position the armature part [30-34] adopts when aligned with the center of the yoke body [10, 20] in which the armature [30-34] may symmetrically oscillate relative to the yoke body [10, 20] between its maximum lateral deflection positions (figure 3; the armature is shown with the springs undeflected), wherein a center of the armature [30-34] is aligned with a center of the yoke body [10, 20] in the center position (figure 3); and

a spring [40-45] having a fixed end [42, 43] clamped in a fixed manner with respect to the yoke body [10, 20] and an oscillating end [41] coupled to the armature part [30-34] at a point of application and acting on the armature part [30-34] in the direction of motion (col. 4, lines 30-36).



Except that Zabar does not expressly disclose that, in the center position of the armature part, the point of application of the spring on the armature part being displaced axially by a predetermined distance in relation to its clamping position.

Rumswinkel discloses a linear drive unit (col. 1, lines 1-5 and figures 1-3) comprising a yoke body [1] having an exciter winding providing a magnetic field (see col. 1, lines 5-10), a magnetic armature part [2, 3] which is set in linear oscillating motion about a center position in an axial direction (reference [20] designates the direction of movement) by the magnetic field of the winding (col. 1, lines 10-19);

wherein, in the center position of the armature part [2, 3], the point of application [42] of the spring [4] on the armature part [2, 3] being displaced axially by a predetermined distance in relation to its clamping position [41] (figures 2-3; in its equilibrium position, the armature is displaced by distance [b]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the linear drive unit of Zabar by offsetting the armature part as taught by Rumswinkel, for improving the efficiency thereof, since Rumswinkel teaches that such a drive unit minimizes the air gap between the magnetic components (col. 1, lines 25-32).

With regard to claim 14, the combination of Zabar and Rumswinkel discloses the drive unit according to claim 13, as stated above, wherein the spring [40-45] is configured as a spring tensioned transverse to the direction of movement of the armature part (figures 3 and 5; col. 4, lines 21-29 of Zabar).

With regard to claim 15, the combination of Zabar and Rumswinkel discloses the drive unit according to claim 14, as stated above, wherein the spring [40-45] comprises a leaf spring (figures 3 and 5; col. 4, lines 21-29 of Zabar).

With regard to claim 16, the combination of Zabar and Rumswinkel discloses the drive unit according to claim 13, as stated above, further comprising a plurality of springs [40-45] disposed on each side of the center position (figures 3-4; col. 3, lines 60-67; each spring [40] comprises two leaf springs [44, 45]).

With regard to claim 17, Zabar discloses the drive unit according to claim 13, as stated above, wherein the armature part [30] is connected to a plunger [3] of a compressor [4, 5, 6] (col. 2, line 62 through col. 3, line 3).

Except that Zabar does not expressly disclose that, in the center position of the armature part, the point of application of the spring on the armature part being displaced axially by a predetermined distance in relation to its clamping position, and the axial displacement of the point of application of the spring on the armature part being provided in the direction away from the compressor.

Rumswinkel discloses the drive unit according to claim 7, as stated above, where the armature part is displaced axially in relation to its clamping position.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the linear drive unit of Zabar by offsetting the armature part away from the compressor as taught by Rumswinkel, for improving the

efficiency thereof, since Rumswinkel teaches that such a drive unit minimizes the air gap between the magnetic components (see col. 1, lines 25-32).

With regard to claim 19, the combination of Zabar and Rumswinkel discloses the drive unit according to claim 13, as stated above, wherein the armature part [30-34] includes two magnets [31-34] arranged symmetrically on each side of the yoke body [10, 20] in the center position (figure 3; col. 3, lines 36-40 of Zabar).

With regard to claim 20, Zabar discloses a linear drive unit [2] (figures 1-3) comprising:

a yoke body [10, 20] having an exciter winding [15, 25] providing a magnetic field (col. 3, lines 12-24);

a magnetic armature part [30-34] which is set in linear oscillating motion about a center position in an axial direction by the magnetic field of the winding (col. 3, lines 36-40), the center position being the equilibrium position where the center of the armature [30-34] is aligned with the center of the yoke body [10, 20] and/or windings [15, 25] thereof (figure 3; the armature is shown with the springs un-deflected); and

a spring [40-45] having a fixed end [42, 43] clamped in a fixed manner with respect to the yoke body [10, 20] and an oscillating end [41] coupled to the armature part [30-34] at a point of application and acting on the armature part [30-34] in the direction of motion (col. 4, lines 30-36);

wherein the spring [40-45] is configured to be tensioned transverse to the direction of movement of the armature part (figures 3 and 5; col. 4, lines 21-29 of Zabar).

Except that Zabar does not expressly disclose that, in the center position of the armature part, the point of application of the spring on the armature part being displaced axially by a predetermined distance in relation to its clamping position.

Rumswinkel discloses a linear drive unit (col. 1, lines 1-5 and figures 1-3) comprising a yoke body [1] having an exciter winding providing a magnetic field (see col. 1, lines 5-10), a magnetic armature part [2, 3] which is set in linear oscillating motion about a center position in an axial direction (reference [20] designates the direction of movement) by the magnetic field of the winding (col. 1, lines 10-19);

wherein, in the center position of the armature part [2, 3], the point of application [42] of the spring [4] on the armature part [2, 3] being displaced axially by a predetermined distance in relation to its clamping position [41] (figures 2-3; in its equilibrium position, the armature is displaced by distance [b]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the linear drive unit of Zabar by offsetting the armature part as taught by Rumswinkel, for improving the efficiency thereof, since Rumswinkel teaches that such a drive unit minimizes the air gap between the magnetic components (col. 1, lines 25-32).

With regard to claim 21, the combination of Zabar and Rumswinkel discloses the drive unit according to claim 20, as stated above, wherein the spring [40-45] comprises a leaf spring (figures 3 and 5; col. 4, lines 21-29 of Zabar).

With regard to claim 22, the combination of Zabar and Rumswinkel discloses the drive unit according to claim 20, as stated above, further comprising a plurality of springs [40-45] disposed on each side of the center position (figures 3-4; col. 3, lines 60-67; each spring [40] comprises two leaf springs [44, 45]).

With regard to claim 23, the combination of Zabar and Rumswinkel discloses the drive unit according to claim 20, as stated above, wherein the armature part [30] is connected to a plunger [3] of a compressor [4, 5, 6] (col. 2, line 62 through col. 3, line 3).

Except that Zabar does not expressly disclose that, in the center position of the armature part, the point of application of the spring on the armature part being displaced axially by a predetermined distance in relation to its clamping position, and the axial displacement of the point of application of the spring on the armature part being provided in the direction away from the compressor.

Rumswinkel discloses the drive unit according to claim 7, as stated above, where the armature part is displaced axially in relation to its clamping position.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the linear drive unit of Zabar by offsetting the armature part away from the compressor as taught by Rumswinkel, for improving the

efficiency thereof, since Rumswinkel teaches that such a drive unit minimizes the air gap between the magnetic components (see col. 1, lines 25-32).

With regard to claim 25, the combination of Zabar and Rumswinkel discloses the drive unit according to claim 20, as stated above, wherein the armature part [30-34] includes two magnets [31-34] arranged symmetrically on each side of the yoke body [10, 20] in the center position (figure 3; col. 3, lines 36-40 of Zabar).

With regard to claim 26, the combination of Zabar and Rumswinkel discloses the drive unit according to claim 7, as stated above, wherein the armature part [30-34] includes two magnets [31-34] arranged symmetrically on each side of the yoke body [10, 20] in the center position (figure 3; col. 3, lines 36-40 of Zabar).

6. Claims 11, 18, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zabar and Rumswinkel as applied to claims 7, 13, and 20, respectively, above, and further in view of Howe (US 3,678,308).

With regard to claim 11, the combination of Zabar and Rumswinkel discloses the drive unit according to claim 7, as stated above, except that the combination does not expressly disclose that the spring [40-45] has a spring constant selected such that the characteristic frequency of the drive unit in cooperation with the total oscillating mass is lower than the frequency of the driving force.

Howe discloses a drive unit (figure 2) having a spring [52] whose spring constant is selected such that the characteristic frequency of the drive unit in cooperation with the total oscillating mass is lower than the frequency of the driving force (col. 1, lines 37-42;

the driving force frequency, the "square wave", is twice that of the drive unit, the "scan frequency of the element").

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the drive unit of Zabar by selecting the spring constant as taught by Howe, for determining the oscillation speed thereof, since Howe teaches that proper coordination of the spring with the natural frequency of the device prevents irregular movement when the device moves too quickly or slowly (col. 1, lines 25-36).

With regard to claim 18, the combination of Zabar and Rumswinkel discloses the drive unit according to claim 13, as stated above, except that the combination does not expressly disclose that the spring [40-45] has a spring constant selected such that the characteristic frequency of the drive unit in cooperation with the total oscillating mass is lower than the frequency of the driving force.

Howe discloses a drive unit (figure 2) having a spring [52] whose spring constant is selected such that the characteristic frequency of the drive unit in cooperation with the total oscillating mass is lower than the frequency of the driving force (col. 1, lines 37-42; the driving force frequency, the "square wave", is twice that of the drive unit, the "scan frequency of the element").

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the drive unit of Zabar by selecting the spring constant as taught by Howe, for determining the oscillation speed thereof, since Howe teaches that proper coordination of the spring with the natural frequency of the device

prevents irregular movement when the device moves too quickly or slowly (col. 1, lines 25-36).

With regard to claim 24, the combination of Zabar and Rumswinkel discloses the drive unit according to claim 20, as stated above, except that the combination does not expressly disclose that the spring [40-45] has a spring constant selected such that the characteristic frequency of the drive unit in cooperation with the total oscillating mass is lower than the frequency of the driving force.

Howe discloses a drive unit (figure 2) having a spring [52] whose spring constant is selected such that the characteristic frequency of the drive unit in cooperation with the total oscillating mass is lower than the frequency of the driving force (col. 1, lines 37-42; the driving force frequency, the "square wave", is twice that of the drive unit, the "scan frequency of the element").

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the drive unit of Zabar by selecting the spring constant as taught by Howe, for determining the oscillation speed thereof, since Howe teaches that proper coordination of the spring with the natural frequency of the device prevents irregular movement when the device moves too quickly or slowly (col. 1, lines 25-36).

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP



§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Andrews whose telephone number is (571)270-7554. The examiner can normally be reached on Monday through Thursday between the hours of 7:30 and 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quyen Leung can be reached at (571)272-8188. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Quyen Leung/  
Supervisory Patent Examiner, Art Unit 2834

/M. A./  
Examiner, Art Unit 2834